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IS 10286 (1993): Bleaching syntan [CHD 17: Leather, Tanning Materials and Allied Products]

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(दूसरा पुनरीक्षण)

Indian Standard

BLEACHING SYNTANS — SPECIFICATION

(Second Revision)

UDC 675.046.1

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110 002

August 1993 **Group 2**

Tanning Materials and Allied Products Sectional Committee, CHD 018

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Tanning Materials and Allied Products Sectional Committee had been approved by the Chemical Division Council.

Synthetic tanning agents or syntans are high molecular organic compounds or mixtures of such compounds. They are proprietary products, which are synthetically prepared to meet the necessary requirements of leather manufacture. Most of the bleaching syntans are manufactured from naphthalene. These syntans are meant for bleaching of vegetable and chrome tanned leathers and as such the tannin content in the bleaching syntan and its effect in raising shrinkage temperature are not very important criteria, hence these have not been prescribed in this standard. Since the bleaching syntans are not meant for tanning, the normal criteria of increase in shrinkage temperature of the leather obtained, using the syntans, do not apply for the bleaching syntans. The bleaching syntans are used to impart bleaching effect on leather.

This standard was originally published in 1982 as Specification for auxiliary syntan (bleaching and pretanning types). The Committee responsible for the preparation of this standard felt that materials covered by this standard should prescribe the bleaching syntan only as the different types of syntans have got different functions and are covered under other standards. It was also felt that bleaching syntan itself is not a direct tanning material but an auxiliary tanning material to impart necessary properties on leather. These facts necessiated the first revision of this standard in 1986. The pretanning syntans are covered under IS 13528 : 1992 'Pretannig Syntans — Specification'.

Subsequently a need was felt to restore the requirement of iron content in this standard, based on the comments received from various sectors of tanning industry. After elaborate discussions and taking into consideration the views of the users, the requirement for iron content has been re-introduced in this revision.

The requirement for performance is an optional requirement, since no instrument is available in India for determination of intensity of bleaching. However the method given in Annex B is for guidance of the user to assess the degree of bleaching in a subjective manner. This requirement will be made obligatory as and when adequate data is available and a value for this requirement is specified.

The Committee responsible for the preparation of this standard is given at Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

BLEACHING SYNTANS — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for bleaching syntans in powder and liquid form for leather industry.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard.

IS No.	*Title*
1640 : 1960	Glossary of terms relating to hides, skins and leather
4905 : 1968	Method for random sampling
13271 : 1992	Syntans — Methods of test

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1640 : 1960 shall apply.

4 REQUIREMENTS

4.1 General

The material shall be in the form of powder or liquid.

4.2 Chemical Requirements

The bleaching syntans shall comply with the requirements as given in **4.2.1** to **4.2.6**.

4.2.1 *Total Solid Content*

a) For liquid syntan — shall be not less than 60 percent when tested in accordance with the method prescribed in **8** of IS 13271 : 1992 ; and

b) For powder syntan — shall be not less than 88 percent when tested in accordance with the method prescribed in **8** of IS 13271 : 1992.

4.2.2 *Total Ash Content*

Shall not be more than 30 percent, when tested in accordance with the method prescribed in **16** of IS 13271 : 1992.

4.2.3 *Salt Content (as Na_2SO_4)*

Shall not be more than 30 percent when tested in accordance with the method prescribed in Annex A.

4.2.4 p*H*

Shall be between 1·3 to 2·0 when a 10 percent solution is tested in accordance with the method prescribed in **13** of IS 13271 : 1992.

4.2.5 *Total Solubles in Water*

Shall be between 96 to 100 percent when tested in accordance with the method prescribed in **9** of IS 13271 : 1992.

4.2.6 *Iron*

Shall not be present by more than 5 ppm of the material, when tested in accordance with the method prescribed in **15** of IS 13271 : 1992.

4.3 Optional Requirements for Performance

A bleaching syntan shall bleach the colour uniformly and remove minor metallic stains on the leathers (*see* Note) when tested in accordance with the method given in Annex **B** for determination of the extent of bleaching.

NOTE — At present no instrument is available in India to measure the intensity of bleaching. However, it can be measured, comparatively, with a colour measurement of surface colours with attachment for measuring yellowness of white as well as fading of red, blue or green for two scales namely, L, aL, bL, and XYZ scales. Till such time one has to assess its performance visually.

5 PACKING AND MARKING

5.1 Packing

Unless otherwise agreed to between the purchaser and the manufacturer, the bleaching syntans shall be packed in moisture proof containers, like gunny-paper bags, suitably lined with moisture proof paper or polyethylene film in the case of powder syntan or in epoxy or otherwise suitably coated drums/carbuoys or jerrycans, in the case of liquid syntans.

5.2 Marking

The containers shall be marked with the following information:

a) Name of the material;

b) Net mass of the material;

c) Manufacturers name or its recognized trade-mark, if any;

d) Batch/Code No; and

e) Month and year of manufacture.

6 SAMPLING AND CRITERIA OF CONFORMITY

6.1 Lot

All the containers of the same capacity containing bleaching syntans manufactured from the same material under similar conditions of production shall constitute a lot.

6.1.1 Sample shall be tested from each lot separately for ascertaining conformity of the material to the requirements of the specification. The number of containers to be selected from each lot (*n*) shall depend on the size of the lot (*N*) and shall be as given in Table 1.

Table 1 Number of Containers to be Selected for Sampling

Lot Size (*N*)	Number of Containers to be Selected (*n*)	Constant Factor, "*k*"	*R*/*U*-*L*
(1)	(2)	(3)	(4)
Up to 100	3	1·6	0·8
101 to 300	4	0·5	0·8
301 and above	5	0·5	0·9

6.1.2 These containers shall be selected at random from the lot. For this purpose, reference may be made to IS 4905 : 1968. If such a random number table is not available, the following procedure may be adopted:

> Starting from any container count 1, 2, 3, ... etc, up to *r* and so on in a systematic manner and withdraw the *r*th container, *r* being the integral part of *N*/*n*; where *N* is the total number of containers in the lot, and *n* the number of containers to be selected according to Table 1. Every *r*th container thus counted shall be selected till the required sample size is obtained.

6.2 Preparation of Test Samples

6.2.1 Representative test samples of the material shall be prepared as prescribed in 6 of IS 13271 : 1992. Shake/mix well each of the containers thus selected. From each of the containers a representative portion of the material sufficient to carry out tests as given in **6.3** shall be taken out.

6.2.2 Out of the portions collected from each of the selected containers, an equal quantity of the material shall be taken out and mixed thoroughly to form a composite sample. The composite sample so formed shall be divided into three equal parts, one for the purchaser, another for the supplier, and the third for the referee.

6.2.3 The remaining portion of the sample from each container shall be divided into three equal parts and each such separate part shall constitute an individual sample. One set of individual samples (representing the *n* containers selected) shall be marked for the purchaser, another for the supplier and the third for the referee.

6.2.4 All the individual and composite samples shall be immediately transferred to separate glass bottles and shall be labeled with full identification particulars of the samples.

6.2.5 The referee sample shall bear the seal of both the purchaser and the supplier. These shall be kept at a place agreed to between the purchaser and the supplier and shall be used in case of dispute between the two.

6.3 Number of Tests

6.3.1 Tests for the tannin content and *p*H value shall be performed on individual samples.

6.3.2 Tests for the remaining characteristics shall be conducted on composite samples.

6.4 Criteria for Conformity

6.4.1 *For Total Solids Content*

The lot shall be considered as conforming to this requirement if ($\bar{X}$-kR) $\geqslant L$ is satisfied, where $\bar{X}$ is the mean of all the results, of samples taken, R is the range, L is the lower specification limit for total solids content and k is constant factor, the value of which is given in Table 1.

6.4.1.1 *For pH value*

The lot shall be considered as conforming to this requirement if all of the following conditions are satisfied.

a) $R/(U - L) \leqslant$ the value given in **4.2.4**

b) $(\bar{X} + kR) \leqslant U$

c) $(\bar{X} - kR) \geqslant L$

where L and U are the lower and the upper specification limits for *p*H value, and k is a constant factor given in Table 1.

6.4.2 *For Composite Sample*

A lot shall be declared as conforming to the requirements for the remaining characteristics if the test results satisfy the requirements prescribed in **4.2.2**, **4.2.3**, **4.2.5** and **4.2.6**.

6.4.3 The lot shall be deemed as conforming to the requirements of the specification if **6.4.1** and **6.4.2** are satisfied.

ANNEX A

(*Clause* 4.2.3)

DETERMINATION OF SALT CONTENT

A-1 PREPARATION OF 0·1 N SODIUM HYDROXIDE SOLUTION

A-1.1 0.1 N sodium hydroxide solution is prepared by taking 4 g sodium hydroxide (analytical reagent) and making up the solution to one litre in a standard flask. The strength of this made up solution has to be determined by titrating against 0·1 N standard potassium hydrogen phthalate solution using phenolphthalein as an indicator.

A-2 PROCEDURE

A-2.1 50 ml of the 1 percent syntan solution prepared for determination of total solid content, was taken and passed through a Dowex 50 W × 8 (H^+) resin column (50 g resin, packed in an ion exchange resin column 1.5 × 40 cm and thoroughly washed with distilled water) and eluted with distilled water. The column was finally washed with about 300 ml distilled water. The eluate and the washings were mixed and titrated against 0·1 N standard sodium hydroxide solution using a *p*H meter. A blank titration was done taking 50 ml of the syntan solution diluted to the same volume with water, but without passing through the ion exchange resin column. The percentage of salt content expressed in terms of sodium sulphate was then calculated.

A-3 CALCULATION

Salt content, percent by mass

$$= \frac{(a - b) \times 0{\cdot}071}{M_1} \times 20 \times 100$$

where

a = volume of 0·1 N sodium hydroxide solution required for the experiment.

b = volume of 0·1 N sodium hydroxide solution required for blank, and

M_1 = mass in g of syntan sample taken for test.

ANNEX B

(*Clause* 4.3)

TEST FOR OBSERVING BLEACHING OF LEATHERS

B-1 PROCEDURE

B-1.1 Wash fully vegetable tanned leathers/chrome wet blue leathers in a drum with 400 percent water for 10 minutes and then pile up for one hour. Take the sammed leathers in a drum. According to the original colour of the leathers, dissolve 1 to 2 percent of syntan (containing 5 to 6 percent of moisture) in 50 percent of warm water (37 to 40°C) calculated on the basis of sammed weight of tanned leathers. Add the syntan liquor through the hollow axel of the running drum. Run the drum for 30 minutes. Lightly rinse the leathers in plain water. Compare the colour of the treated leather with a specimen of the untreated leather carried through the above procedure, using Grey Scale. The higher the contrast, the better would be the bleaching property.

ANNEX C

(*Foreword*)

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